

**Amendments to the Claims**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) Cooling apparatus comprising:  
a removable cryogenic refrigerator; and  
a thermal interface between the removable cryogenic refrigerator and ~~an article~~ a cryogen vessel to be cooled by the cryogenic refrigerator; wherein,  
the thermal interface consists of a gas held in thermal contact with a cooling surface of the refrigerator, within a closed recondensing chamber; ~~and~~  
the ~~article~~ cryogen vessel is cooled by thermal conduction through a wall of the closed recondensing chamber; and  
the thermal interface is the exclusive thermal interface between the refrigerator and the wall of the closed recondensing chamber.
2. (Previously Presented) Cooling apparatus according to claim 1 wherein the cryogenic refrigerator is mounted within a sleeve, and the volume within the sleeve surrounding the refrigerator forms the closed recondensing chamber.
3. (Previously Presented) Cooling apparatus according to claim 1, wherein the gas condenses to a liquid on the cooling surface and falls under gravity into contact with the wall of the closed recondensing chamber.

4. (Previously Presented) Cooling apparatus according to claim 1, wherein the wall of the closed recondensing chamber is in thermal contact with a further recondensing chamber, arranged for the recondensation of a cryogen gas and sealed from the closed recondensing chamber of the interface.
5. (Previously Presented) Cooling apparatus according to claim 1, wherein the cooling surface is provided with fins.
6. (Currently Amended) A cryostat comprising ~~a~~ the cryogen vessel containing a liquefied cryogen, and comprising a recondenser exposed to the interior of the cryogen vessel, the recondenser being connected for cooling by the cooling apparatus according to claim 1.
7. (Original) An MRI system comprising superconducting windings contained within a cryostat as claimed in claim 6.

8. (Currently Amended) A thermal interface, comprising a closed recondensing chamber that is disposed around a recondensing refrigerator and is in thermal contact with a ~~component~~ cryogen vessel that is to be cooled, through a wall of the closed recondensing chamber; wherein:

the closed recondensing chamber is filled with a gas which is recondensed into a liquid by the recondensing refrigerator, ~~whereby~~ wherein thermal contact between the recondensing refrigerator and the ~~component~~ cryogen vessel is provided by recondensation of the gas and through the wall of the closed recondensing chamber and the thermal interface is the exclusive thermal interface between the refrigerator and the wall of the closed recondensing chamber.

9. (Previously Presented) A method for recondensing a cryogen gas within a cryostat comprising the steps of:

providing a recondensing surface exposed to the cryogen gas within the cryostat and arranged in thermal contact with a wall of a closed recondensing chamber of a thermal interface as recited in claim 8; and

cooling the recondensing surface by cooling the component through the wall of the closed recondensing chamber of the thermal interface.

Claim 10. (Cancelled)

11. (Currently Amended) A cooling apparatus comprising:

a cryogenic refrigerator;

a thermal interface that is in thermal contact with a cooling component of the refrigerator, and with ~~an article~~ a cryogen vessel that is to be cooled; wherein

said thermal interface comprises a closed recondensing chamber, at least a portion of which is in thermal contact with said cooling component of the refrigerator;

the closed recondensing chamber is filled with a cryogen gas, and is separated and sealed from a cryogen fluid contained in the ~~article that is to be cooled~~ cryogen vessel, by a wall that is in thermal contact with said cryogen fluid in said ~~article to be cooled~~ cryogen vessel;

said recondensing chamber is configured such that, in an operating state, gas that is liquefied in said recondensing chamber accumulates adjacent said wall and is boiled off by heat transferred from gaseous cryogen fluid in said ~~article that is to be cooled~~ cryogen vessel;  
and

the thermal interface is the exclusive thermal interface between the refrigerator and the wall.

12. (Currently Amended) A cryogenic cooling apparatus comprising:

a cryogenic refrigerator;

a first recondensing chamber that is filled with a gas and is in thermal contact with a cooling component of said cryogenic refrigerator;

a second recondensing chamber that is in thermal contact with said first recondensing chamber and with ~~an article~~ a cryogen vessel that is to be cooled; wherein,

said first recondensing chamber is separated from said second recondensing chamber by a common structural component which forms a heat transfer path between said first and second recondensing chambers, and which seals and isolates said first recondensing chamber from said second recondensing chamber;

said second recondensing chamber is in thermal contact with a cryogenic fluid in said ~~article that is to be cooled~~ cryogen vessel; and

the gas filling the first recondensing chamber is the exclusive thermal interface between the cryogenic refrigerator and the second recondensing chamber.

13. (Currently Amended) The cryogenic cooling apparatus according to Claim 12, wherein said second recondensing chamber is in fluid communication with cryogenic fluid that is contained in an interior of said ~~article that is to be cooled~~ cryogen vessel.